

# IMPROVED SWITCH CAPACITOR CIRCUIT AND APPLICATIONS THEREOF

## ABSTRACT OF THE DISCLOSURE

5

An improved switch capacitor circuit includes a capacitor, a 1<sup>st</sup> voltage reference module, a 2<sup>nd</sup> voltage reference module, and a plurality of switching elements. The capacitor is operably coupled via the plurality of switching elements to sample an input signal during a 1<sup>st</sup> interval of a sampling period and during a 2<sup>nd</sup> interval of the sampling period to provide a representation of the input signal. The 2<sup>nd</sup> reference module produces a 2<sup>nd</sup> reference voltage that is representative of the common mode of the supply (e.g. V<sub>DD</sub> and V<sub>SS</sub>). The 1<sup>st</sup> voltage reference module produces a 1<sup>st</sup> reference voltage that is representative of the common mode of the analog input signal. As such, the capacitor is charged during the 1<sup>st</sup> interval based on the 1<sup>st</sup> reference voltage and discharged during the 2<sup>nd</sup> interval based on the 2<sup>nd</sup> reference voltage.